THE INVOLVEMENT OF CONTACT LENSES IN OCULAR ALLERGIES

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Introduction

Contact Lens-Associated Papillary Conjunctivitis (CLAPC), formerly known as giant papillary conjunctivitis (GPC), has been defined as a papillary reaction of the tarsal conjunctiva of the upper eyelid due to contact lens (CL) wear, in which the papillae reach a diameter of 1.0mm or more, are elevated, and are associated with the discharge of mucus and/or the symptom of itching. Loss of CL wearing time and eventual CL intolerance often result from CLAPC. An understanding of GPC is given diagrammatically in Figure 1. GPC resembles vernal conjunctivitis, a condition of the eyelid long considered to be a hypersensitivity response.

Methodology

Survey 1: Two questionnaires were distributed, one in February 1991, the second in June 1991, on a total random sample of 172 CL wearers from all over Malta and Gozo, to investigate:

- the incidence of CLAPC in Malta as compared to abroad
- the influence of factors like geographic location, age, sex, a history of atopy and seasons on the condition
- the type of CLs and lens-cleaning solutions mostly implicated in inducing/aggravating the condition
- the therapy employed locally and how effective the patients found it

Survey 2: An interview was carried out on a total of 212 non-CL wearers who visited Ophthalmic Out-patients clinics at Floriana, Mosta and Paola during Aug-Sept 1991 to investigate:

- the incidence of ocular allergies in this control group
- the influence of factors like geographic location, age, sex, a history of atopy and seasons
- the therapy employed locally and whether effective or not

Results and Discussion

52.9% (n=91) of CL wearers had suffered from CLAPC. On the other hand, only 18.9% (n=40) of non CL-wearers had suffered some form of ocular allergy such as allergic conjunctivitis, atopic keratoconjunctivitis, vernal conjunctivitis or hayfever conjunctivitis. The results seem to imply that CLs could be increasing the prevalence by a factor of three. Other

Figure 1.

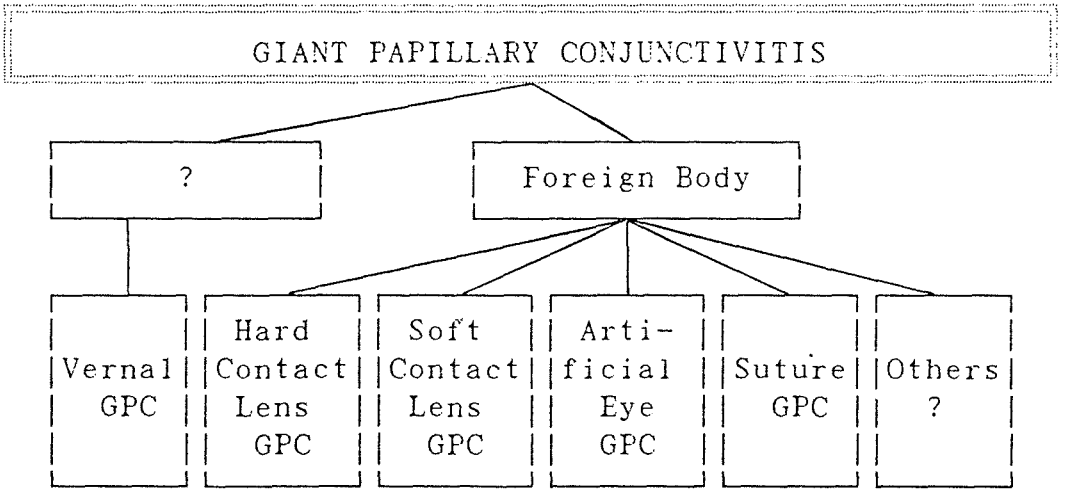
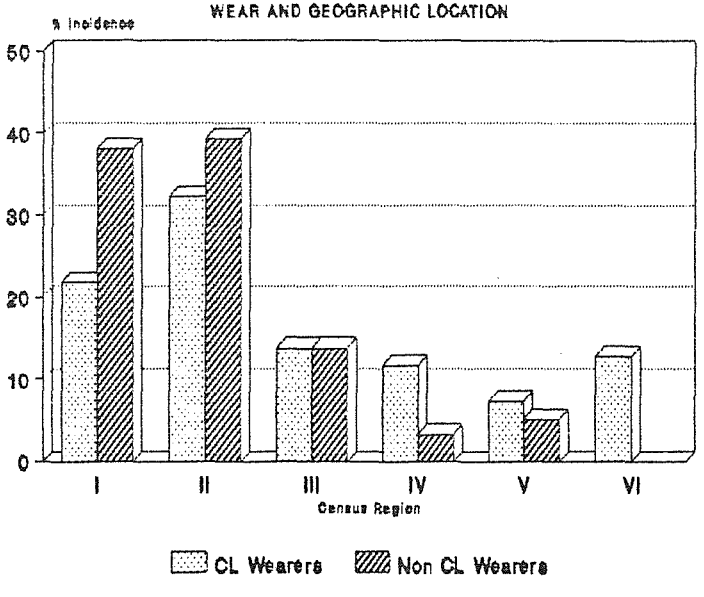


FIGURE 1 - Suggested classification of giant papillary conjunctivitis syndromes.

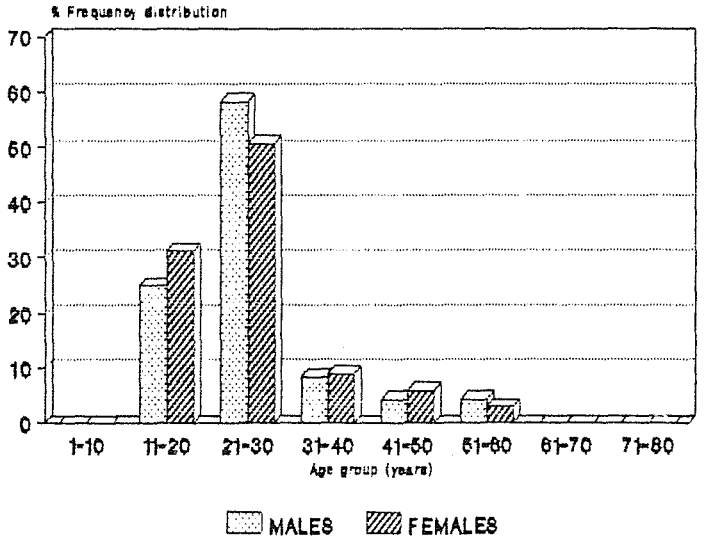
studies need to be carried out both locally and abroad to establish the exact role played by CLs in ocular allergies - whether they are an aggravating factor in patients with pre-existing ocular allergy for the development of CLAPC.

Whether a particular geographic location will eventually cause ocular allergy or not (CL-associated/not) is still unclear. A specific study has to be carried out on a very large population sample incorporating all the towns and villages where each person lives/works/spends his time, in order to get an unbiased idea of his/her exposure to antigens/pollutants and be able to correlate these with the development or progress of the condition.

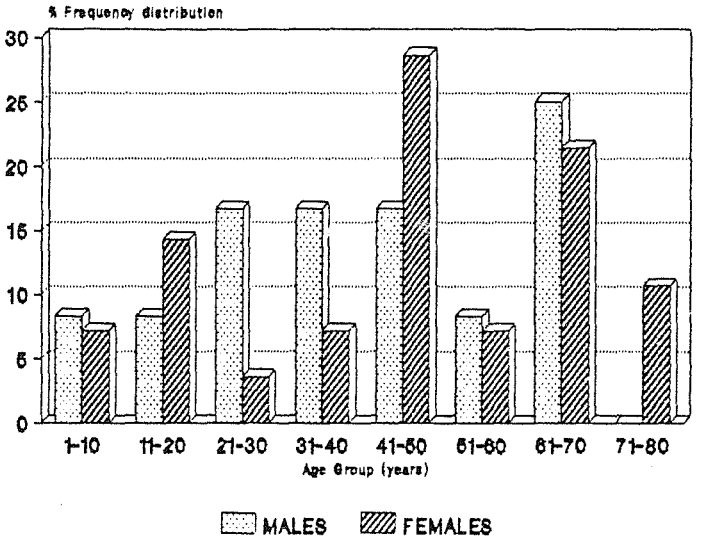
3.3.3 BAR GRAPH OF % FREQUENCY DISTRIBUTION OF OCULAR ALLERGY IN PATIENTS ACCORDING TO CONTACT LENS WEAR AND GEOGRAPHIC LOCATION



3.4.1 BAR GRAPH OF % FREQUENCY DISTRIBUTION OF PATIENTS WITH CL-ASSOCIATED GPC ACCORDING TO SEX AND AGE



3.4.2 BAR GRAPH OF % FREQUENCY DISTRIBUTION OF PATIENTS WITH NON CL-ASSOCIATED OCULAR ALLERGY ACCORDING TO SEX AND AGE



The average age varied from 26 years in CL wearers to 46 years in non-wearers. This is not so significant since it could have been the result of having more young individuals answering to the questionnaire which was sent by post and more elderly patients visiting Ophthalmic Clinics where the interview was carried out. In both study groups, ocular allergy was found to be more prevalent in females than in males. This however, was probably due to the fact that more females participated in the study than males.

59.341% (n=54) of CLAPC patients attended for regular eye checkups as compared to 20% (n=8) of non CL-wearing ocular allergy sufferers. Pharmacists, at this point, should emphasize patient compliance with regards to eye checkups to prevent later complications.

54.946% (n=50) of CLAPC patients had a personal history of atopy as compared to 67.5% (n=27) of non CL-wearing ocular allergy sufferers. Moreover, more females than males were found to be atopic. These results seem to indicate that an atopic background could be a predisposing factor for this condition. It is still now known, however, whether atopic persons develop more CLAPC than non-atopic persons. Hence, the presence of atopy and particularly of ocular allergy is not an absolute contraindication for CL wear.

Further studies on atopy in patients with CLAPC/vernal conjunctivitis and other ocular allergies could illustrate better the exact interaction per patient.

The symptoms of eye irritation experienced by CL wearers and non-wearers were basically the same. However, burning, redness, lacrimation, lid oedema, blurred vision and double vision were the predominating symptoms in CLAPC whereas itching, mucus, spasm and ENT problems such as catarrh and cough occurred more frequently in other ocular allergies, such as hayfever conjunctivitis or vernal catarrh.

34.07% (n=31) of the CLAPC patients reported no seasonal correlation of their condition. 23.08% (n=9) on the other hand, implicated summer as the worst season for their symptoms. This correlated well with 45% of non CL-wearing ocular allergy sufferers. The Maltese summer climate could hence be an aggravating factor in ocular allergy. For this reason, further studies should be carried out to propose a form of prophylactic treatment which could be employed prior to the start of the implicated allergy season.

Table 1: Cumulative results of survey 1 & 2

			CL Wearers	Non CL Wearers
incidence		52.9% (n=91)	18.9% (n=40)	
	average age	26 years	46 years	
	ratio	~3:1	~2:1	
Visits to Ophthalmic Clinic	regular		59.341% (n=54)	20% (n=8)
	only when necessary		8.792% (n=8)	17.5% (n=7)
A history of atopy	personal		54.9% (n=50)	67.5% (n=27)
	both personal and family		35.165% (n=32)	32.5% (n=13)
Symptoms of eye irritation	itching		80.2% (n=73)	87.5% (n=35)
	burning		63.7% (n=58)	42.5% (n=17)
	redness		68.1% (n=62)	55% (n=22)
	lacrimation		53.8% (n=49)	50% (n=20)
	puffed lids		26.4% (n=24)	7.5% (n=3)
	mucus		47.3% (n=43)	52.5% (n=21)
	blurred vision		20.9% (n=19)	12/5% (n=5)
	double vision		1.1% (n=1)	0 (n=0)

Table 1 cont.

	ENT problems	1.1% (n=1)	2.5% (n=1)
	spasm	0 (n=0)	2.5% (n=1)
Seasonal occurrence of symptoms	particular season implicated	57.15% (n=52)	77.5% (n=31)
	perennial symptoms	5.49% (n=5)	15% (n=6)
	association of symptoms with hayfever/sinusitis	25.5% (n=23)	45% (n=18)
	hypoallergenic cosmetics used	34.07% (n=31)	7.5% (n=3)
	medical treatment received	65.9% (n=60)	62.5% (n=25)

The majority of patients reported no correlation of symptoms with hayfever/sinusitis. These contributed to 68.13% (n=62) of CL wearers as compared to 55% (n=22) of non-wearers. 17.58% (n=16) of CLAPC patients and 40% (n=16) of non CL wearers suffering from eye allergy however, associated their eye irritation symptoms with hayfever, and therefore could have been suffering from hayfever conjunctivitis. Future studies could further develop this subject to establish exactly the antigens and antigenic responses involved.

Only 34.07% (n=31) of CL wearers and 7.5% (n=3) of non CL wearers, make use of hypoallergenic cosmetics. From the responses obtained, it can be deduced that there are still many individuals who are completely ignorant of the existence of hypoallergenic cosmetics. The pharmacist is in an excellent position to ensure the public is educated on this regard and to promote these products instead of the non-allergenic counterparts.

Results obtained show that hydrophilic-CLAPC is ten times more common than hard CLAPC. This value agrees exactly with the ratio submitted by Matthea R.Allansmith in the First Fisons International

Ophthalmology Workshop of the 5th March, 1987 on Diseases of the External Eye.

The average time limit of wearing a CL is around two years for a hydrophilic lens and about 10 - 15 years for a hard (PMMA) lens. The 'rejection' of the CL by the conjunctiva is an inflammatory process and, to a great extent, an immunologic one. There is a need to refine the plastic used for CLs by considering more closely biosurface adhesion and the related inflammatory response to the nature of this biosurface. In this way, CLs could be worn for a longer period of time without the risk of developing conjunctival intolerance.

48.2% (n=44) of the patients suffering from CLAPC reported that using an eye lubricant temporarily relieved their eye irritation such as itching and burning . This was probably due to the fact that frequent instillation of artificial tears flushes the ocular surface as well as the lens.

47.25% of CLAPC patients changed solutions from preservative-containing to preservative-free ones and 27.47% of them (n=5) started using protein-removing effervescent tablets regularly, on their ophthalmologist's advice. Pharmacists should advice on the importance of using preservative-free CL solutions and encourage all CL wearers to make use of these as well as the effervescent tablets.

The responses received with regards to treatment employed clearly demonstrate that there is an absolute need for locally practising ophthalmologists to meet and reach a common protocol with regards to the management of CLAPC.

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